

[EE] Evening Poster | A (Atmospheric and Hydrospheric Sciences) | A-HW Hydrology & Water Environment

[A-HW22]Hydrological Cycle and Water Environment

convener:Seiya Nagao(Institute of Nature and Environmental Technology, Kanazawa University), Isao Machida(Geological Survey of Japan), Shin'ichi Iida(国立研究開発法人森林研究・整備機構森林総合研究所森林研究部門森林防災研究領域水保全研究室, 共同), Takeshi Hayashi(Faculty of Education and Human Studies, Akita University)

Thu. May 24, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

We focus on various issues of water cycle and environment and aim to answer questions of hydrological and earth system sciences including 1) surface, subsurface and evapotranspiration processes of water cycle; 2) natural and anthropogenic hydrothermal systems, 3) environments issues and studies on a watershed or global scale, 4) water-related issues with ecological, environmental, and geochemical aspects, and 5) other issues in hydrological sciences. This session welcomes presentations regarding various kinds of approaches and techniques such as field survey, remote sensing, isotope tracers, numerical simulation, and theoretical analysis.

[AHW22-P11]THE APPLICATION OF HEC-GeoRAS MODEL FOR SEGMENT FLOOD EVALUATION AT WINONGO STREAM IN TEGALREJO DAN JETIS DISTRICT, YOGYAKARTA SPECIAL REGION

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Keywords:Flood Hazard Mapping, HEC-GeoRAS, Winongo River

A Flood occurred at Winongo River in March 2016 has caused many of residence in Yogyakarta inundated. The Flood caused considerable material losses for communities who live along the riverbanks. One of the effort to reduce the flood disaster impact is to create a flood hazard map using hydrological modeling. The creation of flood hazard map at river areas was done by using HEC-GeoRAS Modeling that able to illustrate the area and the depth inundation in the study area. The output from the modeling would be overlaid with land use map into the flood hazard map.

The necessary data in HEC-GeoRAS modeling are consisted of flood peak discharge, Digital Elevation Model (DEM) and Manning Roughness Coefficient. The flood peak discharge data was calculated by using unit hydrograph method, the DEM data was obtained from the extraction of aerial photographs, and the Manning's roughness coefficient data are collected from the actual calculations and field observations.

Flood hydrograph of Winongo Streamline on the 2nd, 5th, 10th, and 25th year of return periods have discharged peak water value of 108.89 m³/s, 160.28 m³/s, 196.30 m³/s and 243.40 m³/s in a row. DTM data are collected from aerial-photograph. The results of this research showed the same patterns and the insignificant differences.